

Occupational Well-being Among University Faculty: A Job Demands-Resources Model

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Abstract The effects of changing academic environments on faculty well-being have attracted considerable research attention. However, few studies have examined the multifaceted relationships between the academic work environment and the multiple dimensions of faculty well-being using a comprehensive theoretical framework. To address this gap, this study implemented the Job Demands-Resources (JDR) model to investigate how job demands/resources in the academic environment interact with multiple dimensions of faculty well-being. The study participants were 1389 full-time faculty members employed in public universities in the Czech Republic. The participants completed a questionnaire assessing perceived job resources (influence over work, support from supervisor and colleagues), job demands (quantitative demands, work-family conflicts and job insecurity) and three dimensions of faculty well-being (job satisfaction, stress and work engagement). A structural equation model was used to test the effects of “dual processes” hypothesized by the JDR theory, i.e., the existence of two relatively independent paths between job demands/resources and positive/negative aspects of faculty well-being. The model showed a very good fit to our data and explained 60% of the variance in faculty job satisfaction, 46%, in stress and 20% in work engagement. The results provide evidence for the dual processes, including the “motivational process” (i.e., job resources were related predominantly to work engagement and job satisfaction) and the “health impairment process” (i.e., job demands were predominantly associated with stress, mostly through work-family conflict). The study expands current research on faculty well-being by demonstrating the complex, non-linear relationships between academic work environments and different dimensions of faculty well-being.

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Introduction

In the past few decades, public universities worldwide have undergone significant changes, including massification, increasing internationalization, growing emphasis on the applicability of academic work and the rising influence of university management, which have reshaped academic work and workplaces (Bentley et al. 2013; Teichler et al. 2013). Currently, there is an ongoing debate about the impacts of this global shift on the well-being of academics, suggesting large cultural and contextual variation in these effects (Bentley et al. 2013). The results of the large-scale “The Changing Academic Profession” study concluded that despite these changes, academics in many countries have generally preserved a high sense of autonomy and professional identity and expressed high levels of job satisfaction (Bentley et al. 2013; Teichler et al. 2013). However, in some countries in which these changes have been most pronounced, the well-being of academic staff has declined, arguably due to deterioration in the academic work environment that has eroded academics’ control over their jobs while considerably increasing their workload (Gillespie et al. 2001; Fredman and Doughney 2012; Kinman and Jones 2008; Tytherleigh et al. 2005; Shin and Jung 2014; Winefield et al. 2003).

The objective of the present article was to further explore the relationship between the academic work environment and faculty well-being. The national contexts for the study are public universities in the Czech Republic, which—similar to higher education institutions in other Central Eastern European countries—are currently on a relative periphery of the global changes (Melichar and Pabian 2007) but increasingly follow the international trends in higher education (Pesik and Gounko 2011). Conceptually, the study stems from the Job Demands-Resources (JDR) theory (e.g., Bakker 2011; Bakker and Demerouti 2014), which provides a framework for the comprehensive evaluation of key characteristics of the academic work environment and their relationships with multiple dimensions of faculty well-being. In this way, the study makes three main contributions to the literature. First, the study implements a more complex concept of faculty well-being, encompassing both its positive and negative aspects, which contrasts to the dominant focus of much of the extant research on either job stress or job satisfaction. Second, the study investigates multiple processes through which academic work environments interact with different aspects of faculty well-being, implementing a well-established theoretical framework provided by the JDR model. This is in contrast to other research, which has typically examined only linear relationships between the academic environment and faculty well-being, without a coherent theoretical framework. Third, the study provides further insight into potential cultural and contextual differences in work-environment factors influencing the well-being of academics from a so far under-researched context of a Central Eastern European country.

Academic Work Environment and Faculty Well-being: An Overview

To date, a considerable portion of the literature on faculty well-being has focused on job satisfaction, i.e., “the extent to which people like or dislike their jobs” (Spector 1997, p. 2). This research suggests that despite changes in the academic work environment, academic

work has remained a high satisfaction job in most countries (Bentley et al. 2013; Shin and Jung, 2014). This could be attributed to a number of factors. Positive social characteristics of the academic workplaces have emerged as crucial determinants of academics' job satisfaction, including university atmosphere, sense of community, relationships with colleagues (Lacy and Sheehan 1997), perceived quality of students (Bentley et al. 2013), effectiveness of administration and technical/administrative support (Bentley et al. 2013; Rosser 2004), quality of academic leadership (Fredman and Doughney 2012) or social reputation of academics in society (Shin and Jung 2014). Academics' autonomy and influence over their work represent another key work environment characteristic, impacting the job satisfaction both directly (Bentley et al. 2013) and moderating the negative effect of other factors, such as high work demands (Fredman and Doughney 2012). Some authors argue that different aspects of the work environment are related to job satisfaction (as opposed to no satisfaction) and dissatisfaction (as opposed to no dissatisfaction) (Lacy and Sheehan 1997). Controlling leadership and "managerial culture" (Fredman and Doughney 2012; Winefield et al. 2003), high workloads, job insecurity and work-family conflicts (Catano et al. 2010; Kinman et al. 2006) have been found as important drivers of job dissatisfaction in academia.

Another bulk of research has addressed rising levels of job stress among academic faculty. Global changes to the academic work environment have been frequently linked to increases in job stress at academic workplaces, the levels of stress often being perceived as exceedingly high even by academics otherwise satisfied with their jobs (Kinman and Jones 2008; Shin and Jung 2014). The rising levels of stress have been mainly attributed to increasing levels of managerial control, work demands, job insecurity and work-family conflicts (Ablanedo-Rosas et al. 2011; Catano et al. 2010; Gillespie et al. 2001; Kinman et al. 2006; Shin and Jung, 2014; Tytherleigh et al. 2005; Winefield et al. 2003). For example, in Shin and Jung's comparative study of 19 national systems of higher education (2014), performance-based management emerged as the main distinguishing factor between "low-stress" and "high-stress" systems. In Australian universities, diminishing teacher/student ratios, job insecurity, staff cuts and reduced funding have been found to contribute to the dramatic increase in Australian academics' levels of stress (Gillespie et al. 2001; Winefield et al. 2003). Similar results have been reported in the UK context, where rising workloads (such as teacher–student ratios, work hours) and job insecurity (such as the proportion of short-term contracts, funding cuts or external accountability) have been linked to the high levels of psychological distress amongst UK academics (Kinman et al. 2006; Tytherleigh et al. 2005). A high incidence of job stress has also been related to high work overload and work-life imbalance in academics in other countries, such as the US and Canada (Ablanedo-Rosas et al. 2011; Blix et al. 1994; Catano et al. 2010).

Compared to the abundance of research on faculty job satisfaction and job stress, few studies have focused on work engagement (i.e., "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication and absorption," Schaufeli et al. 2002, p. 74) in academia. Work engagement, a positive counterpart to burnout (Bakker and Demerouti 2014), appears to be enhanced by favorable social characteristics of the academic work environment, such as positive social climate, social and organizational support or supportive supervision (Barkhuizen et al. 2014; Hakanen et al. 2006; Rothmann and Jordaan 2006). Additionally, other positive structural factors, such as autonomy and job control, role clarity and availability of information, job variety and focus on innovation or growth and personal development opportunities have been identified as factors positively associated with work engagement (Barkhuizen et al. 2014; Hakanen et al. 2006; Rothmann and Jordaan 2006). On the other hand, work engagement of academics was negatively

impacted by the high level of work demands, particularly when job resources, such as organizational support, were lacking at the workplace (Rothmann and Jordaan 2006).

Work Environment at Czech Public Universities

Extant studies addressing the relationship between the academic work environment and faculty well-being have predominantly focused on the advanced Anglo–American and Western European countries. Nevertheless, such research is clearly relevant to other regions, including the Czech Republic and other central and eastern European countries. Czech public universities offer a particularly interesting setting for an analysis of academic environments and their impact on academic staff, as they mirror, in some ways, the changes that took place decades ago in developed countries (Molesworth et al. 2010). Czech universities gained considerable independence after 1989 as “a radical alternative” to the extreme state control of universities during the previous communist era (Pesik and Gounko 2011, p. 738), providing Czech academics with considerable autonomy over their work and governance in academic affairs (Dobbins and Knill 2009; File et al. 2009; Pesik and Gounko 2011; Melichar and Pabian 2007). Over the past few decades, however, Czech public universities, in order to strengthen their competitiveness within the global market, have been pressured to adopt some of the market-oriented changes taking place at universities worldwide (Dvorackova et al. 2014; File et al. 2009; Pesik and Gounko 2011).

Czech academics appear to be affected by some of these changes, especially due to increasing work demands and performance-based distribution of resources. Faculty members employed at Czech universities generally consider universities underfinanced (Mateju and Fischer 2009), and recent policy changes have further increased competition for relatively scarce resources by putting stronger pressure on faculty members’ productivity (e.g., by linking university budgets to the quantity of research publications) and measurement of performance (e.g., by increasing the importance of quantitative indicators, such as the h-index, in evaluating academics’ productivity) (Government of the Czech Republic 2013). Because of these changes, university faculty have become more dependent on grant-based financing (Dvorackova et al. 2014), and they have been pushed to strive for “excellence” in research in order to succeed in grant competition (Sima 2013). Czech faculty members’ teaching loads have also grown in the past 25 years, as student enrollment has dramatically increased while the number of teaching positions has remained relatively stagnant; between 1989 and 2007, the student/teacher ratio increased by more than 100% (Prudky et al. 2010).

On the other hand, academic work as a profession bears considerable prestige in Czech society (Czech Sociological Institute 2013), and Czech faculty have reported high levels of autonomy at work and a positive social climate in their workplaces (Zabrodska et al. 2016; Prudky et al. 2010). Academics have traditionally been dominant stakeholders in Czech public universities, with considerable influence in university governance (Pabian et al. 2013) and high autonomy in teaching and research (Melichar and Pabian 2007). Although the majority of Czech faculty members believe that reforms are needed to make Czech public universities more economically effective (Mateju and Fischer 2009), there is widespread consent that these reforms should not affect the autonomy of public universities and the influence of academics over university affairs (Melichar and Pabian 2007). For example, when former Czech right-wing governments attempted to introduce market-oriented reforms of public university governance, such as the implementation of tuition fees or support for private investments (Ministry of Education, Youth, and Sports CR

2008), strong opposition from faculty and students resulted in the suspension of these attempts (Hampl 2012).

Apart from the high level of autonomy, the work environment in Czech public universities provides a number of social benefits for the majority of Czech faculty, such as a relatively high level of job security (Melichar and Pabian 2007), strong social support from colleagues and supervisors (Zabrodska et al. 2016) and a positive social climate with a relatively low incidence of hostile workplace behavior, such as conflicts and bullying (Zabrodska and Kveton 2012; Zabrodska and Kveton 2013). A concerning side of the social environment in Czech public universities is a high level of “academic inbreeding”: the majority of Czech faculty members tend to spend their whole academic career at one institution (Prudky et al. 2010; Melichar and Pabian 2007). Furthermore, advancement in academic careers is often based on informal networks rather than on academic productivity. For example, a study found that in some social science disciplines, the majority of Czech professors do not have any publications in international refereed journals (Machacek and Kolcunova 2009). The dominant model of career advancement in Czech higher education institutions has been described as “dynastic,” as young academics often advance to senior ranks only by replacing senior academics after they leave or retire (Linková and Cervinková 2013).

In such work environments, some groups of Czech faculty appear to have a more advantageous position. Czech universities do not provide tenure as is common in Anglo-American higher education systems. Instead, similar to many other European countries, aspiring junior faculty members go through a procedure of “habilitation,” which demands several years of uninterrupted extensive teaching and research completed by a public defense of a habilitation thesis. The faculty members that have completed the habilitation (“docents,” equivalent to associate professors) enjoy a number of benefits because university departments, in order to obtain accreditation for academic programs, are legally bound to employ docents and professors as guarantors of the quality of teaching and research. Due to the difficulty of the habilitation, there is a low supply of faculty members with these qualifications; therefore, even though the docents and professors do not have a guaranteed permanent position, they exercise a high level of job security and power within the university hierarchy due to their administrative function (File et al. 2009). The docents and professors “are characterized by maturity” (Melichar and Pabian 2007, p. 43); on average, Czech associate professors are 54 years old, and professors are 61 years old (Mateju and Fischer 2009). By contrast, younger Czech academics appear to face a number of obstacles in developing their academic careers, such as short-term contracts, low salaries and lack of available academic positions (Linková and Cervinková 2013; Melichar and Pabian 2007; Prudky et al. 2010).

Apart from the academic position and age, gender represents another key demographic variable at Czech university departments. Overall, men are disproportionately more frequently employed in academic positions at Czech universities (Czech Statistical Office 2015). The gender gap gets more pronounced in the higher echelons of the Czech public university hierarchy, as only 24.8% of associate professors and 14.5% of professors are women (Czech Statistical Office 2015). Male academics also report higher salaries even when the position is accounted for (Mateju and Fischer 2009). Moreover, men are less likely to leave their academic career (File et al. 2009). This is because the normative expectations of linear, uninterrupted academic career development are especially demanding for women academics with children (Linková and Cervinková 2013), partly due to conservative family policies and a lack of childcare options in the Czech Republic (Saxonberg et al. 2012). Some studies also point to differences in the quality of academic

work environments between scientific disciplines within the Czech academia, especially along the lines of hard/soft sciences. Specifically, technical and natural science workplaces show higher adherence to the global shifts, which appears to be reflected in higher work demands in these disciplines than in the humanities and social sciences (File et al. 2009; Linková and Cervinková 2013).

Theoretical Framework—Job Demands—Resources Model

While the academic work conditions and their impact on faculty well-being have been discussed considerably both in national and international contexts, there have been relatively few attempts to use comprehensive theoretical models to understand this relationship. Bakker and Demerouti (2014) outline several limitations of the current research on occupational well-being, some of which are also relevant to research in higher education contexts. First, the current models typically focus on one aspect of faculty well-being, such as stress/burnout (Ablanedo-Rosas et al. 2011; Catano et al. 2010; Gillespie et al. 2001; Kinman et al. 2006; Tytherleigh et al. 2005; Zabrodska et al. 2017), work engagement/motivation (Rothmann and Jordaan 2006) or job (dis)satisfaction (Bentley et al. 2013; Bozeman and Gaughan 2011; Fredman and Doughney 2012; Lacy and Sheehan 1997; Rosser 2004; Schulz 2013). Although some studies have focused on multiple aspects of faculty well-being, such as job satisfaction and job stress (e.g., Shin and Jung 2014; Winefield et al. 2003), these studies typically did not explore these aspects within a theoretical framework that would facilitate understanding of the different interactions between multiple aspects of faculty well-being and academic work environments. To overcome this limitation, we integrated these different conceptualizations of faculty well-being into three interrelated dimensions: work-related positive emotions (i.e., work engagement), negative emotions (i.e., stress) and cognitive evaluations (i.e., job satisfaction) (Bakker and Demerouti 2014; Danna and Griffin 1999; Fredman and Doughney 2012; Kinman et al. 2006; Rothmann 2008; Shin and Jung 2014). In this way, we strive to enhance the understanding of the complex ways in which university work environments influence the different aspects of faculty well-being.

Second, while focusing on one aspect of faculty well-being, the extant studies considered a limited number of work environment variables and explored relatively linear relationships without sufficient attention to the complexity and changing nature of current academic jobs. As shown above, the studies on faculty stress (or other negative states, such as burnout) have predominantly emphasized the negative aspects of the current academic work environments, such as job insecurity, high work demands, work-family conflicts or over-management (Ablanedo-Rosas et al. 2011; Catano et al. 2010; Gillespie et al. 2001; Kinman et al. 2006; Shin and Jung, 2014; Tytherleigh et al. 2005; Winefield et al. 2003). By contrast, studies on job satisfaction have predominantly emphasized positive aspects of academic work environments, such as autonomy or positive social community (Bentley et al. 2013; Lacy and Sheehan 1997; Shin and Jung 2014). However, the processes through which different aspects of academic work environment may influence different dimensions of faculty well-being have been rarely researched within a comprehensive framework within a single study (for exceptions, see Barkhuizen et al. 2014; Boyd et al. 2011).

Third, diverse aspects of the academic work environment may be salient across different systems of higher education. Studies on the well-being of academic staff have been mostly conducted in Australia and Western European and North American countries, i.e., countries leading the global changes towards higher marketization of universities. Research indicates that in these countries, lack of autonomy, managerial control, job insecurity and

high work demands represent major stressors for academics (Gillespie et al. 2001; Kinman et al. 2006; Tytherleigh et al. 2005; Winefield et al. 2003). However, in other countries with different systems of higher education governance, such as the Czech Republic, these characteristics may have a lesser impact or may be perceived differently due to different cultural/contextual norms and practices (Prudky et al. 2010; Melichar and Pabian 2007).

In this study, we aim to address the above noted limitations of the extant research. To do so, we propose to investigate the impact of academic work environments on faculty well-being within the framework of the Job Demands-Resources (JDR) model (e.g., Bakker 2011; Bakker and Demerouti 2014). The JDR model provides a flexible theoretical tool for conceptualizing key aspects of the work environment, explaining and predicting a wide range of work-related outcomes, including stress, burnout, work engagement, organizational commitment, job satisfaction or productivity (Bakker 2011). The JDR model proposes two broad job characteristics that relatively independently influence employee well-being: job demands (defined as job aspects that require sustained effort and that are associated with physiological and psychological costs) and job resources (defined as factors functional in achieving work goals, reducing job demands or stimulating personal growth and development) (Bakker and Demerouti 2014). These two broad categories may include several variables. Some of these variables are relatively general (such as autonomy, work pressure or social support), while others are more dependent on the specific work domain (Bakker and Demerouti 2014). Using the JDR framework, the key job resources at academic workplaces have been conceptualized, for example, as organizational and social support, growth and career advancement opportunities, autonomy, role clarity or performance feedback, while job demands have included work overload, work-home interference or job insecurity (Bakker et al. 2005; Barkhuizen et al. 2014; Boyd et al. 2011; Rothmann and Jordaan 2006).

The JDR model argues that the impact of job demands and job resources on occupational well-being arises through relatively autonomous “dual processes” that have different impacts on stress and work engagement (Bakker and Demerouti 2014; Schaufeli and Bakker 2004; Hakanen et al. 2006). It appears that job demands predominantly influence experienced stress through a “health impairment process” related to exerted effort and energy, whereas job resources predominantly influence work engagement through a “motivational process” related to the fulfilling of basic psychological needs of autonomy, relatedness and competence (Bakker and Demerouti 2014, p. 9). Various studies have shown that these two processes are not entirely independent. For example, job resources enhance work engagement, especially when job demands are high (Bakker et al. 2007), and also prevent the negative impact of job demands on stress/burnout (Bakker et al. 2005; Barkhuizen et al. 2014; Boyd et al. 2011; Hakanen et al. 2006; Schaufeli and Bakker 2004). Furthermore, job demands and job resources have been found to influence other aspects of occupational well-being through their effects on stress/burnout and work engagement, including job satisfaction, turnover intention, organizational commitment or health problems (Barkhuizen et al. 2014; Hakanen et al. 2006; Schaufeli and Bakker 2004). Therefore, application of the JDR model to academic environments could provide a further and more detailed explanation of the psychological processes related to the ways in which academics experience and evaluate their work and workplaces, adding to the current literature on this topic (e.g., Fredman and Doughney 2012; Gillespie et al. 2001; Kinman et al. 2006; Lacy and Sheehan 1997; Winefield et al. 2003; Shin and Jung 2014; Tytherleigh et al. 2005).

In our study, we conceptualized job resources as influence over work, support from colleagues and support from supervisor and job demands as job insecurity, work-family conflicts and quantitative work demands (i.e., perceived ability to cope with emerging job

tasks). On the basis of the reviewed research, we expected that these dimensions would provide a complex description of the key aspects of academic workplaces that may, in various ways, impact faculty well-being. Specifically, the included job resources have been considered by various authors as defining positive features of academic workplaces in international and Czech contexts (Dobbins et al. 2011; Fredman and Doughney 2012; Henkel 2005, Pesik and Gounko 2011; Melichar and Pabian 2007), with documented positive effects on work engagement and job satisfaction of academics (Barkhuizen et al. 2014; Boyd et al. 2011; Fredman and Doughney 2012; Lacy and Sheehan 1997; Rothmann and Jordaan 2006; Shin and Jung 2014; Winefield et al. 2003). The job demands included characteristics of academic workplaces that have been most frequently considered the key work-related stressors stemming from global changes at academic workplaces (Gillespie et al. 2001; Winefield et al. 2003; Kinman et al. 2006; Tytherleigh et al. 2005; Rothmann and Jordaan 2006; Shin and Jung 2014).

Aim of the Study

In the present study, we examined the ways in which academics at Czech public universities perceived their workplaces and how these perceptions related to their occupational well-being. We explored these effects within the JDR framework, a well-established model of organizational behavior (Bakker 2011; Bakker and Demerouti 2014), and comprehensively considered the relationships between job demands, job resources, job satisfaction, stress and work engagement. On the basis of the JDR model and the studies introduced above, we formulated a set of hypotheses regarding the relationship between the work environment at academic workplaces and faculty well-being. We empirically tested these hypotheses within the structural equation modeling framework on a large sample of academics employed full-time at Czech public universities. We based the implemented structural model on the following hypotheses:

H1 Job resources are positively associated with work engagement among academics.

H2 Job demands are positively associated with experienced stress among academics.

H3 Job satisfaction is positively associated with work engagement and negatively associated with stress in academia.

H4 Different levels of job resources/demands and faculty well-being are related to gender, age, discipline (hard/soft sciences) and position (academics with/without habilitation).

Methodology

Data Collection

The research population for the study was academic staff employed on full-time or part-time contracts at Czech public universities. All major Czech public universities were included in the data collection process. The data were collected via a web-based electronic questionnaire with an interactive check of response completeness. The study was conducted in November and December 2014; we specifically opted for data collection at the

end of a semester in order to ensure that respondents had previously spent several months in direct contact with their work environments. Prior the data collection, we compiled a list of email addresses of potential participants using contact information that is publicly available on universities' websites. In total, we collected approximately 20,000 email addresses. Because the study specifically focused on academics' perceptions and well-being, non-academic employees were not included, and Ph.D. students were included only when they were simultaneously employed in an academic position. Academics employed simultaneously at a public university and another higher education/research institution were invited to participate only if their position at a public university was their primary employment. The potential participants were then contacted by an email that included relevant information about the research and a direct link to our web-based questionnaire. According to statistics, the total number of academic staff in Czech universities in 2013/2014 was 21,545 (Czech Statistical Office 2015); therefore, we contacted almost all Czech university academics. Of those invited to participate, 4517 opened the survey invitation link, and 2071 completed all items in the questionnaire. In order to obtain the most relevant insights into academic workplaces, we included only academics employed full-time; therefore, our final analytical sample consisted of 1389 respondents. Before the project's start date, the research team obtained ethical approval for the study from the Institutional Board of the Institute of Psychology, Czech Academy of Sciences.

Participants

In total, 2071 respondents fully completed the questionnaire and provided relevant data in all methods. The sample thus included 10% of the researched population, which is comparable to other Czech and international studies using online surveys among academic faculty (e.g., Kolsaker 2008; Rysavy 2011). After excluding PhD students and part-time employees, the analytical sample consisted of 1389 academics. Descriptive characteristics of the sample are provided in Table 1 (for more detailed descriptions, see Zabrodska et al. 2016). Participation in the study was based on self-selection; as such, our convenience sample is not entirely representative. It is therefore important to compare the characteristics of our sample with the researched population to examine possible biases. Using the Chi square test, we compared descriptive statistics of academics in our sample (namely gender, academic rank and discipline) to the available population parameters (Czech Statistical Office 2015). The comparison suggests some differences between our sample and the population (as reported for the year 2013/2014); despite these biases, we were able to approximate the population of Czech academics fairly well.

In terms of gender, women comprised 35.6% of academic staff at Czech public universities; women were therefore slightly overrepresented in our sample (40.2%) ($\chi^2 = 13.27$, $df = 1$, $p < 0.01$). In terms of academic rank, higher-ranking academics were somewhat underrepresented in our sample ($\chi^2 = 48.05$, $df = 3$, $p < 0.01$). The category of professor comprised 11.6% of the population (in comparison to 9.1% in our sample), category of associate professor 19.7% (19.9% in our sample), assistant professors 54.6% (50.8% in our sample) and other ranks comprised 14.1% (20.2% in our sample). In terms of disciplines within the Czech higher education sector, 23.8% of academics worked in technical sciences (compared to 23.1% in our sample), 40.7% in natural and medical sciences (compared to 29.3% in our sample) and 28.2% in social sciences and the humanities (compared to 43.3% in our sample). Therefore, faculty in natural and medical sciences were somewhat underrepresented, while faculty in the social sciences and the humanities were overrepresented in our sample ($\chi^2 = 172.56$, $df = 3$, $p < 0.01$).

Table 1 Descriptive characteristics of the research sample

Gender	
Male	59.8%
Female	40.2%
Age (years)	
25–29	4.4%
30–39	46.1%
40–49	21.1%
50–59	16.9%
60–69	9.6%
≥70–79	1.8%
Discipline	
Humanities/social studies	43.3%
Natural sciences	29.3%
Technical sciences	23.1%
Other	4.3%
Position	
Postdoc	3.2%
Lecturer	3.0%
Researcher	10.4%
Assistant professor	50.8%
Associate professor	19.9%
Professor	9.1%
Other	3.6%

Measures

We designed our questionnaire on the basis of previously established findings concerning academic work environments and the effects on academic staff well-being (e.g., Fredman and Doughney 2012; Winefield et al. 2003; Shin and Jung 2014; Schulz 2013). The questionnaire included information concerning demographic characteristics of the respondents (age, gender, etc.), employment variables (formal position, type of contract, length of employment, etc.) and included well-established scales measuring employee well-being and the work environment, as discussed below. To measure job satisfaction and stress, we used two scales (“job satisfaction” and “stress” scales) from the Copenhagen Psychosocial Questionnaire II (COPSOQ II; Kristensen et al. 2005). The “job satisfaction” scale measures general job satisfaction (“How pleased are you with your job as a whole, everything taken into consideration?”) and satisfaction with specific aspects of the job. In our study, we used three items of the scale, one general and two specific: work prospects and use of abilities (Cronbach’s $\alpha = 0.783$). The respondents indicated the level of satisfaction with their job on a 4-point scale ranging from 1 (very unsatisfied) to 4 (very satisfied). The 4-item “stress” scale (Cronbach’s $\alpha = 0.840$) measures the occurrence of various emotions related to stress, such as tension or irritability (e.g., “How often have you been tense?”) on a 5-point scale ranging from 1 (all the time) to 5 (never). As a measure of work engagement, we used the Utrecht Work Engagement Scale (UWES, Schaufeli et al. 2006), which assesses positive emotions experienced at work with three 3-item subscales (“vigor,” “dedication” and “absorption”). In each subscale, respondents indicate the

frequency of their emotions related to the subscale on a 7-point scale ranging from 1 (never) to 7 (all the time). Examples of UWES items include “At my work, I feel bursting with energy” (vigor), “I am enthusiastic about my job” (dedication) and “I am immersed in my work” (absorption). The reliability of the complete scale was Cronbach’s $\alpha = 0.909$.

We measured academics’ experiences with various aspects of their work environment using scales selected from the COPSOQ II (Kristensen et al. 2005). Specifically, we selected scales measuring job demands/resources that we hypothesized to be key determinants of faculty well-being. These scales included “Influence over work” (Cronbach’s $\alpha = 0.794$), “Support from Colleagues” (Cronbach’s $\alpha = 0.804$), “Support from Supervisor” (Cronbach’s $\alpha = 0.863$), “Quantitative Work Demands” (Cronbach’s $\alpha = 0.827$), “Job Insecurity” (Spearman-Brown $\rho = 0.702$) and “Work-Family Conflicts” (Cronbach’s $\alpha = 0.851$). In each subscale, respondents indicate the degree or frequency with which they experience various situations related to the subscale on a 5-point scale ranging from 1 (always/to a very large extent) to 5 (never/to a very small extent). Examples of the items include “Do you have a large degree of influence concerning your work?” (Influence); “How often do you get help and support from your colleagues?” (Support from colleagues); “How often is your nearest superior willing to listen to your problems at work?” (Support from supervisor); “Do you fall behind with your work?” (Quantitative demands); “Are you worried about becoming unemployed?” (Job insecurity); and “Do you feel that your work takes so much of your time that it has a negative effect on your private life?” (Work-family conflicts). All standardized questionnaires used in the study were translated into Czech using a standard back-translation procedure.

Analysis

The structural model presented in the results was computed in the lavaan package in R (Rosseel 2012) and estimated using the maximum likelihood method. We used three indicators for each latent variable with the exception of job insecurity, which had only two items as indicators. Scales measuring support from supervisor, support from colleagues, job satisfaction and work-family conflicts all included three items. The influence, quantitative demands and stress originally included 4 items. However, we collapsed the first and last items into a single parcel (i.e., aggregate-level indicator comprised of the average of two or more items) computed as the mean score. For the work engagement scale, we used three parcels per variable as indicators (the items were distributed into parcels based on their ordering). Parceling was used to reduce sampling variability of the selected sample and the amount of incorrectness of the model (Little 2013) in cases when scale had more than three items.

In the SEM model, we controlled for the influence of age, gender, position (with/without habilitation) and discipline (humanities/social sciences vs. technical/natural sciences) by incorporating these variables as predictors of each latent variable, and we used the marker variable method to set the scale of the latent variables. Because of the large sample size, we report and interpret the results only at the 1% level of significance. Only data from complete questionnaires were included in the analysis; therefore, there were no missing values. No outliers were identified in the data, and all the reported coefficients from our analyses were standardized. To correct for response bias, we applied the appropriate weights for gender, rank and discipline based on population values reported in the Participants section. The model fit was assessed using standard measures of model fit:

the Chi square statistic and corresponding p value; the standardized root mean square residual (SRMR, which should approximate or be less than 0.08 for a good fitting model) (Hu and Bentler 1999); the root mean square error of approximation (RMSEA, with values approximately 0.05 or less being indicative of a close fit and values of 0.08 or less being indicative of a good fit) (MacCallum et al. 1996); and the comparative fit index (CFI, where values should be higher than 0.90 for adequately fitting solutions) (Marsh et al. 2004).

Results

Descriptive Statistics

In Table 2, we summarize the descriptive univariate and bivariate statistics for the variables used in subsequent analyses. Overall, respondents reported higher levels of job resources than job demands, with influence over work obtaining the highest ($m = 3.47$) and job insecurity obtaining the lowest score ($m = 2.63$) on the 5-point scales. To provide a better perspective, 65.4% of the respondents reported that they had influence over their work “all the time” or “often.” By contrast, 15.5% of the respondents reported that they were afraid of losing their job “to a (very) large degree.” Regarding other job resources, 45.2% of the respondents perceived that they obtained support from supervisors, and 55.7% reported that they obtained support from colleagues “all the time” or “often.” Regarding job demands, 23.3% of the respondents reported that they fall behind with work “all the time” or “often,” and 27.1% reported that their work takes so much time that it “definitely” has a negative impact on their personal life.

The respondents reported having a relatively high degree of occupational well-being. The majority (86.2%) of our respondents reported being satisfied or very satisfied with their job “when everything is taken into consideration.” The respondents also reported having a relatively high level of work engagement; on average, they reported experiencing work engagement-related emotions “often” ($m = 5.02$). Stress-related emotions appeared to be less frequent; on average, the respondents generally experienced stress “part of the time” or a “small part of the time” ($m = 2.68$). However, 23.7% of the respondents reported that they experienced stress “all the time” or “most of the time.”

The correlational analysis showed that job satisfaction was positively related to support from supervisor ($r = 0.48$), support from colleagues ($r = 0.34$), job influence ($r = 0.44$) and work engagement ($r = 0.49$) and negatively related to the level of experienced stress ($r = -0.37$). A close relationship was also found between stress and quantitative demands ($r = 0.44$), stress and work-family conflicts ($r = 0.52$) and quantitative demands and work-family conflicts ($r = 0.55$).

Testing the Structural Equation Model

Before testing the structural model, we tested the adequacy of the measurement properties of each construct by applying CFA with correlated latent variables. The measurement model showed very good fit ($\chi^2 = 1114.19$; $df = 263$; $p < 0.01$; $RMSEA = 0.048$; 90% CI [0.045–0.051]; $SRMR = 0.041$; $CFI = 0.955$).¹ We formulated the structural model based on our hypotheses, in which job demands (quantitative demands, work-family

¹ The measurement model did not include the control variables (age, gender, position, and discipline).

Table 2 Descriptive statistics of basic demographic, stress and job-related variables and their correlations

	Gend	Age	Posit	Disc	SSup	Scol	Infl	Qdem	WFC	Jins	Weng	Stress	Jsat
Age	0.02												
Posit	0.21	0.46											
Disc	0.24	-0.01	0.11										
SSup	0.06	-0.01	0.06	-0.09									
Scol	-0.01	-0.09	-0.03	0.01	0.30								
Infl	0.20	0.11	0.19	0.08	0.35	0.29							
Qdem	0.05	-0.12	-0.04	0.08	-0.20	-0.08	-0.22						
WFC	-0.01	-0.04	0.01	-0.01	-0.13	-0.10	-0.18	0.55					
Jins	-0.17	-0.09	-0.23	0.02	-0.15	-0.08	-0.22	0.12	0.10				
Weng	0.00	0.12	0.12	-0.05	0.28	0.19	0.33	-0.16	-0.02	-0.18			
Stress	-0.03	-0.18	-0.11	-0.01	-0.24	-0.14	-0.26	0.44	0.52	0.24	-0.28		
Jsat	0.09	0.08	0.16	-0.03	0.48	0.34	0.44	-0.24	-0.23	-0.25	0.49	-0.37	
m/sd					3.14/1.00	3.25/0.80	3.47/0.74	3.08/0.77	2.87/0.84	2.63/1.09	5.02/0.98	2.68/0.79	2.86/0.58

Scale scores were computed as the means of the corresponding items. Values over 0.08 are significant at the 1% level. *Ssup* Support from supervisor, *Scol* Support from colleagues, *Infl* Influence, *Qdem* Quantitative demands, *WFC* Work-family conflicts, *Jins* Job insecurity, *Weng* Work engagement, *Jsat* Job satisfaction. Age, gender, position and discipline characteristics are described in the Sample section. Gender is coded as 1 for men and 0 for women; position as 1 for academics with habilitation and 0 for academics without habilitation; discipline as 1 for technical and natural sciences and 0 for humanities/social sciences

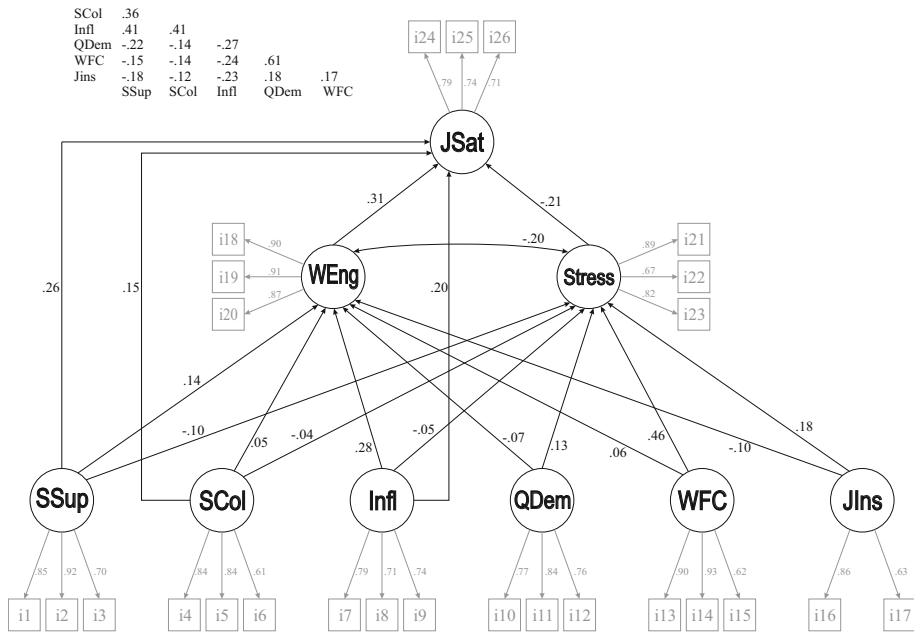


Fig. 1 Structural model of job resource/demands and faculty well-being. All presented estimates are in the standardized form. Abbreviations are explained in Table 2. With the exception of the regression coefficient Weng ~ Scol, Weng ~ Qdem, Weng ~ WFC, Stress ~ Scol, and Stress ~ Infl, all relationships are significant at the 1% level. For the sake of clarity, age, gender, position and discipline relationships are not depicted in the picture (see Table 4), and the correlations between work environment characteristics are summarized in matrix form

conflicts and job insecurity) and job resources (support from supervisor and colleagues, influence at work) predicted the level of work engagement and stress, which subsequently predicted job satisfaction. Overall, this model showed reasonable fit ($\chi^2 = 1727.55$; $df = 337$; $p < 0.01$; $RMSEA = 0.055$; 90% CI [0.052–0.057]; $SRMR = 0.054$; $CFI = 0.0928$). When inspecting the modification indices, we found that adding three direct relationships between work environment and job satisfaction (support from supervisor, support from colleagues and job influence at work) could substantially improve the model fit; each modification index showed a χ^2 improvement larger than 100. Because these relationships are theoretically meaningful, we formulated a modified model with relevant parameters freely estimated. Together, these parameters significantly improved the overall fit ($\Delta\chi^2 = 268.516$; $df = 3$; $p < 0.01$). The modified SEM model showed a very good fit ($\chi^2 = 1459.03$; $df = 334$; $p < 0.01$; $RMSEA = 0.049$; 90% CI [0.047–0.052]; $SRMR = 0.039$; $CFI = 0.942$) and explained 60.4% of the variance in job satisfaction, 45.9% in experienced stress and 20.3% in work engagement. Figure 1 presents the model.

The strongest predictor of work engagement was influence over work ($\beta = 0.28$), followed by support from supervisor ($\beta = 0.14$), and the strongest predictor of stress was work-family conflict ($\beta = 0.46$), followed by job insecurity ($\beta = 0.18$) and quantitative demands ($\beta = 0.13$). As hypothesized, both work engagement ($\beta = 0.31$) and stress ($\beta = -0.21$) were significantly related to job satisfaction. Furthermore, the model showed direct influence of support from supervisor ($\beta = 0.26$), support from colleagues ($\beta = 0.15$)

Table 3 Effects of work environment characteristics on job satisfaction in the modified model

	Work engagement	Experienced stress	Job satisfaction	
R2	0.20	0.46	0.60	
Job-related characteristic	Standardized estimate	Path	Standardized estimate	
Support from supervisor	0.14*	−0.10*	Indirect through WEng	0.04*
			Indirect through Stress	0.02*
			Direct	0.26*
			Total	0.32*
Support from colleagues	0.05	−0.04	Indirect through Weng	0.02
			Indirect through Stress	0.01
			Direct	0.15*
			Total	0.18*
Influence over work	0.28*	−0.05	Indirect through Weng	0.09*
			Indirect through Stress	0.01
			Direct	0.20*
			Total	0.29*
Quantitative demands	−0.07	0.13*	Indirect through Weng	−0.02
			Indirect through Stress	−0.03*
			Total	−0.05*
Work-family conflicts	0.06	0.46*	Indirect through Weng	0.02
			Indirect through Stress	−0.10*
			Total	−0.08*
Job insecurity	−0.10	0.18*	Indirect through Weng	−0.03*
			Indirect through Stress	−0.04*
			Total	−0.07*

* 1% level of significance

and influence over work ($\beta = 0.20$) on job satisfaction. Gender, age, position and discipline appeared to have a significant effect on a number of work environment variables. For example, gender was significantly associated with influence over work ($\beta = 0.18$, men scoring higher), age with quantitative demands ($\beta = 0.14$), discipline with support from supervisor ($\beta = -0.11$, technical and natural sciences scoring lower than the humanities) and position with job insecurity ($\beta = -0.25$, habilitated academics scoring lower than academics without habilitation).

The relevant parameters describing the direct and indirect effects of work environment characteristics on work engagement, stress and job satisfaction are summarized in Table 3. The effects of gender and age in the model are summarized in Table 4.

Discussion

We found that the modified model fit our data well and largely confirmed our hypotheses regarding the work environment-faculty well-being relationship. In the model, job resources (especially influence over work and support from supervisor) were

Table 4 Effects of gender, age, discipline and position on the variables of the model

	Ssup	Scol	Infl	Qdem	WFC	Jins	Weng	Stress	Jsat
Gender (male)	0.07	-0.03	0.18*	0.06	0.00	-0.14*	-0.06	-0.00	0.03
Age	-0.05	-0.12*	0.04	-0.14*	-0.07	-0.03	0.08*	-0.10*	-0.03
Discipline (natural/ technical sciences)	-0.11*	0.03	0.03	0.09*	0.02	0.07	-0.05	-0.03	-0.03
Position (habilitated)	0.07	0.04	0.13*	-0.01	0.02	-0.25*	0.02	0.03	0.08*

* 1% level of significance. Abbreviations are explained in Table 2

predominantly associated with work engagement and, both directly and indirectly, with job satisfaction. Job demands (including quantitative demands, work-family conflicts and job insecurity) were associated almost exclusively with stress; there were no significant direct associations between job demands and work engagement, and the indirect associations with job satisfaction were small. These findings provide further support for the existence of “dual processes” through which the work environment influences different aspects of occupational well-being, as hypothesized by the JDR theory (Bakker and Demerouti 2014; Schaufeli and Bakker 2004; Hakanen et al. 2006). This suggests that distinct interactions between the work environment and various facets of occupational well-being should also be considered in the context of academic workplaces (Barkhuizen et al. 2014; Boyd et al. 2011).

Job Resources and the Motivational Process

First, our results provide further evidence for the “motivational process” taking place between job resources and work engagement (Bakker and Demerouti 2014; Boyd et al. 2011; Schaufeli and Bakker 2004), as the work engagement was significantly associated with the job resources (specifically with influence over work and support from supervisor) but not with job demands in the model. Along with Schaufeli and Bakker (2004), we may argue that these workplace characteristics encompass both intrinsic and extrinsic motivational function. Intrinsic values, such as a possibility to follow research interests, and extrinsic values, such as striving for promotion, represent important reasons why academics engage in academic work (Tien and Blackburn 1996). In this way, support from supervisor and influence over work may be seen as intrinsic facilitators (Gagné and Deci 2005; Olafsen et al. 2015), enhancing the ability to independently pursue academic interests, and also as extrinsic facilitators, aiding the progress of academics within the academic hierarchy and determining the successful development of academic careers (Laudel and Gläser 2008; Van Balen et al. 2012; Remmik et al. 2011). However, the portion of variance in work engagement explained by the model was modest, and the impact of job resources on work engagement was significant but not dramatic.

The effects of the motivational process extended to job satisfaction, as the model explained a large portion of variance in job satisfaction (60%), with job resources and work engagement as the main predictors. These results provide a partial explanation for the high level of job satisfaction reported by the participants of our study and also suggest why the overall satisfaction of academics with academic work has generally remained high, despite

growing work pressures that have been reported both in international (Bentley et al. 2013; Teichler et al. 2013; Shin and Jung 2014) and Czech contexts (Dvorackova et al. 2014; Linková and Cervinková 2013; Prudky et al. 2010; Sima 2013). Our results suggest that in contrast to job stress, the job satisfaction of academics appears to be relatively independent of job demands. We argue that as long as the academics have available sufficient job resources (e.g., perceive their social environment as supportive and retain high influence over their work), they may be predominantly satisfied with the academic job regardless of the growing work demands. This is consistent with the results of other studies; for example, Shin and Jung (2014) found that job satisfaction of academics was mainly related to prestige and autonomy of academic work, whereas job stress was mainly related to performance pressures across 19 national systems of higher education.

Of all the included job resources, support from supervisor was most strongly associated with job satisfaction and, unlike the other work environment variables, was significantly related to other facets of faculty well-being, including work engagement and stress. Therefore, the role of academic leaders in creating positive work conditions at academic workplaces appears to be indispensable (Machovcova and Zabrodska 2016). We observed a fairly large variability in the ways in which our participants perceived support from their supervisors, which may stem from the specific position academic leaders have at academic workplaces. It has been argued that academic leaders may be prone to weak leadership because they are selected on the basis of scientific, rather than managerial, competence (Goodall 2006), which may lead to conflicts between leadership responsibilities and the need to remain involved in intensive scholarly production (Hecht 2006). Leadership positions in academia are also typically only temporary (Strathe and Wilson 2006), and the leaders are not always identified with the leadership role (Hecht 2006). These attributes may result in a lack of concerns with management and manpower planning (Dobbins et al. 2011). On the other hand, several recent Czech studies have reported that the majority of Czech academics generally perceived a high level of supervisory support, although the overall quality of leadership has been evaluated as less positive (Zabrodska et al. 2016; Zabrodska and Kveton 2013). On the basis of these studies and our results, we argue that focusing on the quality of academic leadership at Czech academic workplaces may be an effective way to improve the occupational well-being of Czech academics.

Regarding the other included job resources, influence over work may also be considered a job resource with a widespread impact on academic staff's well-being. Even in the work environment of Czech public universities, which has been characterized by a high level of academic autonomy (Prudky et al. 2010; Pabian et al. 2013; Melichar and Pabian 2007), differences in influence over work appeared to be significantly associated with job satisfaction of academics. This finding is consistent with results reported from universities in other countries, where various measures related to the autonomy of academics, such as level of empowerment, shared governance or academic freedom, have been significantly related to job satisfaction (Fredman and Doughney 2012; Shin and Jung 2014; Winefield et al. 2003). Furthermore, the results of our study show that significant parts of this relationship can be explained by the mediating role of work engagement, i.e., academics with higher influence over their work were more satisfied with their jobs, partially because they were more engaged with academic work. On the other hand, we observed only a weak direct effect of support from colleagues on job satisfaction, which is in contrast to some studies that found a positive social climate as a crucial determinant of job satisfaction among academics (Lacy and Sheehan 1997). We argue, along with other studies conducted in the Czech context (Zabrodska et al. 2016; Prudky et al. 2010; Zabrodska and Kveton 2013), that the social climate at Czech academic workplaces appears to be predominantly

positive, and variability in other job resources represents a more important determinant of Czech faculty well-being.

Job Demands and the Health Impairment Process

Prolonged exposure to stressful work conditions has been related to a number of adverse health consequences, such as exhaustion (Demerouti et al. 2001), repetitive strain injury (Bakker et al. 2003) or cardiovascular disease (Siegrist 1996), and the negative health impacts of work-related stressors have been discussed at length in the context of academic workplaces (Kinman and Court 2010; Tytherleigh et al. 2005). Our results provide further evidence of the “health impairment process” (Bakker and Demerouti, 2014) taking place at academic workplaces. Consistent with the hypotheses, our model explains a moderately large portion of variance in stress (46%), with job demands being almost exclusive predictors. These findings are in line with other studies suggesting that workplace characteristics related to the exhaustion of psychological resources, such as falling behind with work, worries about job security or difficulties in keeping work-family balance, may lead to high levels of stress (Ablanedo-Rosas et al. 2011; Catano et al. 2010; Gillespie et al. 2001; Kinman et al. 2006; Shin and Jung, 2014; Tytherleigh et al. 2005; Winefield et al. 2003; Zabrodska et al. 2017), even when the academics remain engaged with their work and satisfied with their jobs (Barkhuizen et al. 2014; Shin and Jung 2014). Considering that almost one quarter of our respondents reported excessive levels of stress, we argue that the hypothesized job demands at Czech academic workplaces represent significant sources of stress for academics, although the adverse effects of these stressors may be much less noticeable with regard to the other aspects of faculty well-being.

Of all the included job demands, work-family conflict appeared as the most significant stressor for academics in our sample. Academic work has been described as an “always on” work environment characteristic by the blurry border between work and leisure time (Gornall and Salisbury 2012). In such a work environment, academics are generally expected to prioritize work and strive for sustained excellent performance (Fox et al. 2011), which has also been a recent trend at Czech academic workplaces (Dvorackova et al. 2014; Sima 2013). Difficulties in balancing work and family roles may be particularly stressful for younger academics with children, as emerging academics must conform to stringent expectations of uninterrupted periods of relatively extensive teaching and research in order to ensure their further promotion, such as tenure, permanent appointment or habilitation (Bazeley 2003; File et al. 2009; O’Meara and Campbell 2011). Academics with children are frequently subjected to both institutional and self-inflicted pressures, which force them either to prioritize academic work over family or experience conflict between multiple demands stemming from work and family contexts (O’Meara and Campbell 2011). This trend has been increasingly experienced by Czech academics, especially by emerging academics developing their academic careers at “excellent” academic workplaces (Linková and Cervinková 2013). Specifically in the Czech context, the possibilities of combining family and professional career demands, especially during the early periods of career development, have been further complicated by the negative discourse on institutional childcare, conservative family policies and the lack of affordable early childcare facilities (Saxonberg et al. 2012). On the basis of these results, we argue that implementation of policies at academic workplaces enhancing work-family balance, such as flexibility policies, suitable leave arrangements and care provisions (e.g., university on-site childcare), may be one of the most effective ways of reducing stress in Czech academics.

Despite the reports of increasing work pressures at Czech public universities stemming from the growing number of students, competition for grant-based funding or focus on excellent research (Dvorackova et al. 2014; Sima 2013), quantitative demands appeared to have a relatively weak effect on experienced stress of the academics in our sample. This suggests that Czech academics generally have thus far been able to cope with their work pressures relatively well, and they generally do not experience much stress due to work overload. We contrast these findings with those observed in other countries, especially the UK and Australia, which have found that work overload is a major predictor of high levels of stress among academics (Kinman et al. 2006; Winefield et al. 2003; Tytherleigh et al. 2005). However, we observed a strong relationship between work-family conflicts and quantitative demands in our sample. This is consistent with other studies finding that the work demands at academic workplaces influence stress in academics predominantly by rising work-family conflict (Peeters et al. 2005). Therefore, we argue that in the current work conditions, Czech academics have been able to cope relatively well with their work demands, but at the expense of their family time, which reduces their time for recovery and increases the risk of adverse impacts of work on their psychological well-being.

Job insecurity had a relatively weak effect on the well-being of our respondents. This finding is consistent with the characterization that the Czech public university system provides relatively secure academic careers (Melichar and Pabian 2007). We argue that job insecurity generally does not represent a significant concern for the majority of Czech academics, which is in contrast with results reported in other countries, such as the UK or Australia, where job insecurity has been identified as a major source of stress among academic employees (e.g., Kinman et al. 2006; Winefield et al. 2003; Tytherleigh et al. 2005). However, our findings also support the notion that some groups, such as women or early career academics, are in more precarious positions in Czech academia (see also Linková and Cervinková 2013; Prudky et al. 2010). Above all, we observed the highest effect of academic position (i.e., completing the habilitation) on the job insecurity of all included demographic variables. There is strong demand for academics with habilitation in the Czech system, as they wield crucial functions in the administrative structure of Czech universities (File et al. 2009). At the same time, the system of habilitation implemented at Czech universities has been criticized as inflexible and not corresponding to the diverse needs of contemporary higher education institutions. Academics without habilitation are important members of Czech academic departments, ensuring the quality of teaching, and the low job security of these academics may have negative consequences, especially regarding the sustainability of some types of teaching programs (File et al. 2009).

Inequalities in Job Resources and Job Demands

Apart from the effects of habilitation, other included demographic variables also showed significant relationships in the model, suggesting that some groups of academics within the Czech university sector have access to lower job resources and experience higher job demands. Owing to the gender structure of the Czech public university sector, men unsurprisingly reported having greater influence over work and lower job insecurity. Men are highly overrepresented in leadership positions within Czech universities, whereas women are more often employed in precarious positions, such as assistants and lecturers (Mateju and Fischer 2009; Prudky et al. 2010). Additionally, men have disproportionately more frequently (approximately a 3:1 ratio) completed the habilitation (Mateju and Fischer 2009). However, some of the negative effects related to gender (such as lower influence and job security of women) remained even when the effects of habilitation were accounted

for in our model. Furthermore, we observed small but significant effects of discipline associated with higher quantitative demands and lower support from supervisor. This might be related to the fact that Czech natural and technical sciences (as compared to the humanities and social sciences) have been reported to adopt a higher emphasis on research excellence, applicability of research results and more frequent collaboration with industries outside the academe, resulting in more work pressures and managerial approaches (File et al. 2009; Linková and Cervinková 2013).

Limitations

Our study has some limitations. First, our sample was not entirely representative of the general population of Czech academics, as it included a higher proportion of women and academics from the humanities and social sciences and a lower proportion of academics from natural sciences and higher academic ranks. However, because we predominantly focused on exploring the relationship between the academic work environment and faculty well-being, we believe that the sample provided sufficient heterogeneity to examine this relationship. Furthermore, to correct for response bias, we applied weights based on the available population statistics in the analysis. Second, the study employed a cross-sectional design, which limits causal interpretations of the proposed relationships. Although the theoretical background prompts us to consider the anticipated direction of causality valid, we may presume that the relationships proposed in the model are bidirectional to a degree. Third, in the questionnaire survey, we included variables that we expected to reflect the key job resources and job demands at Czech academic workplaces with the greatest effect on academics' well-being. Although the model explained a significant portion of the variance, especially in job satisfaction and experienced stress, a large portion of variance in the well-being variables remained unexplained. This suggests that other factors not included in our study might have had a similar or even greater effect. Finally, we focused on the well-being of academic staff as the main outcome of the model, whereas other possible outcomes, such as individual or organizational productivity, were not considered. Such a focus may present a somewhat misleading and overly positive picture of the Czech system of public university governance. For example, despite the high levels of job satisfaction observed in the study, the majority of Czech academics believe that significant institutional reforms to the Czech system of public university governance are needed (Mateju and Fischer 2009). Moreover, some studies (Shin and Jung 2014) have suggested that academic workplaces defined by high autonomy, high job satisfaction and low stress often show lower productivity, which might also apply to Czech academic workplaces.

Conclusions

This study implemented the JDR model to explore the effects of job resources and job demands on the well-being of Czech academic staff. As the main outcome, our results largely confirmed the “dual processes” hypothesis in the context of academic workplaces, as the included job resources and job demands were relatively independently associated with work engagement, stress and job satisfaction. In particular, job resources appeared to be related to work engagement and job satisfaction through a “motivational process,” with the support from supervisor and influence over work having the greatest effects. By

contrast, the job demands were predominantly related to experienced stress through the “health impairment process,” mostly provided by the effect of work-family conflicts. These findings have implications for understanding the effects of changing academic workplaces on faculty well-being. We expect that growing job demands reported at universities worldwide may predominantly manifest through increased stress of academic employees. At the same time, the overall job satisfaction and work engagement of academics may remain high despite these changes, especially when the academic workplaces keep providing sufficient job resources, such as a high degree of influence over work and a positive social climate. Our results also suggested some ways to improve the occupational well-being of academics. Above all, an implementation of policies aimed at the quality of academic leadership and work-family balance may have particularly beneficial effects. The results also suggest that the salience of some work-environment factors, such as work demands or job insecurity, may differ across national systems of higher education. However, in order to better understand the effects of different job resources/demands on faculty well-being across different systems of higher education governance, a comparative perspective using multinational samples would need to be implemented. In this way, our study suggests possible directions for further research that would directly compare effects of the academic work environment on faculty well-being across different systems of university governance using the JDR model.

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